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ABSTRACT

Methods and apparatus facilitating logging-while-drilling (LWD) using a multi-pole acoustic transmitter source. The multi-pole transmitter source enables measurement of formation velocities, including shear wave velocities through formations that are slower than velocities through local fluids. The methods and apparatus are particularly well suited for LWD and wireline seismic surveys in which both the seismic or acoustic source and receivers are both deployed in a borehole, but may also be used for VSPs (vertical seismic profiling).